

ABSTRACT

The polygon-type semiconductor detector for use in a high-speed X-ray CT according to the present invention enables a high resolution, and allows the time and cost for manufacturing to be significantly reduced, by virtue of the detection pixel group thereof having mutually homogeneous characteristics. First, X-ray modules are each constructed by arranging a plurality of X-ray detection pixels (4) formed by means of photolithography in a line on a single planar semiconductor substrate constituted of CdTe. Then, by polygonally arranging a plurality of these X-ray modules on the circumference of a measuring section around a measuring area, this polygon-type semiconductor detector is formed. Thereby, when a multiphase fluid having mutually different densities flows in the measuring area (10), this polygon-type semiconductor detector can acquire the projection data of internal density distributions at a high speed.